Shri Vile Parle Kelavani Mandal's
**DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING**
(Autonomous College Affiliated to the University of Mumbai)
NAAC Accredited with "A" Grade (CGPA : 3.18)

**End Semester Examination (January 2023)**
**Academic Year: 2022-2023**

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| **Max. Marks: 75** | **Duration:** 3 **Hr.** |
| Class: TE | Semester: V |
| Course: Sensor and Actuator Technology for IoT | Course Code: DJ19ECHN2C1 |
| Program: EXTC | |

**Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover page of the Answer Book, which is provided for their use.**
(1) This question paper contains two pages.
(2) All Questions are Compulsory.
(3) All questions carry equal marks.
(4) Answer to each new question is to be started on a fresh page.
(5) Figures in the brackets on the right indicate full marks.
(6) Assume suitable data wherever required, but justify it.
(7) Draw the neat labelled diagrams, wherever necessary.

| Question No. | | Max. Marks |
|---|---|---|
| Q1 (a) | Define Accuracy, Repeatability, Hysteresis, Resolution, Non-linearity, Range, Sensivity, Span, Error, Bandwidth<br>**OR**<br>What is the basic requirement of a transducer? | [08]<br><br>[08] |
| Q1 (b) | What are the different types of Transducers? | [07] |
| Q2 (a) | Write a short note on Thermistors<br>**OR**<br>Write a short note on Resistance Temperature Sensors | [05]<br><br>[05] |
| Q2 (b) | Write a short note on CCD sensors and detectors | [10] |
| Q3 (a) | What are the different types of Pressure Sensors? Explain in detail. | [5] |
| Q3 (b) | Explain construction and working of LVDT and RVDT with diagram<br>OR<br>Describe Capacitive Position, Proximity, and Displacement Sensors. | [10]<br><br>[10] |
| Q4 (a) | Explain Displacement and Piezoelectric transducer<br>**OR**<br>Draw and explain the working of Flash ADC, R2R DAC. | [10]<br><br>[10] |
| Q4 (b) | Explain the Utilization of Signal Conditioning circuits for Temperature | [05] |
| Q5 (a) | **Solve any two.**<br>i. What are the standards for smart sensor interface?<br>ii. Define excitation, amplification, filters, converters<br>iii. Define compensation, information coding/processing, data communication.<br>iv. Differentiate Thick Film sensors, Thin Film sensors | <br>[05]<br>[05]<br>[05]<br>[05] |

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| Q5 (b) | Write a short note on on-board automobile sensors/automotive sensors | [05] |